

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed December 12, 2005. Claims 16-49 were pending in the Application. In the Office Action, Claims 16, 18-26, 29-31, 34-38, 41-47 and 49 were rejected, and Claims 17, 27, 28, 32, 33, 35, 39, 40 and 48 were objected to. In order to expedite prosecution of this Application, Applicants amend Claims 20, 33, 44 and 46. Thus, Claims 16-49 remain pending in the Application. Applicants respectfully request reconsideration and favorable action in this case.

In the Office Action, the following actions were taken or matters were raised:

DOUBLE PATENTING

Claims 16-49 are rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 6,778,351. Applicants will file a terminal disclaimer if needed to address any potential double patenting once the allowability of pending independent claims of the present Application are indicated.

SECTION 112 REJECTIONS

Claims 20-22, 29 and 30 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, regarding Claim 20, the Examiner asserts that it is not clear how “the first cable is adapted to communicate an identical predetermined set of signals as the first cable.” Applicants have amended Claim 20 to make clear that “the first cable is adapted to communicate an identical predetermined set of signals as the second cable” (emphasis added). Applicants respectfully request that the rejection of Claim 20 be withdrawn.

Regarding Claims 21, 22, 29 and 30, the Examiner asserts that it is not clear how the frame has a travel path. Applicants respectfully disagree. Applicants’ specification, in referring to figure 2, recites:

Picker assembly 12 includes redundant umbilical cables 30 and 32 according to the teachings of the present invention. Upper umbilical cable 30 may be attached to a point on the media storage housing at or near the upper reaches of translate frame 20. Lower umbilical cable 32 may be attached to a point on the media storage housing at or near the lower reaches of translate frame 20. Umbilical cables 30 and 32 are preferably self-retracting such as a Z-fold cable which automatically folds to take up slack in the cable. For example, as picker assembly 12 moves up, slack in upper umbilical cable 30 is folded into storage tray 34 disposed on top of picker assembly 12; as picker assembly 12 moves down, slack in lower umbilical cable 32 is folded and collected onto the bottom floor.

(Applicants' specification, page 5, lines 1-10). Thus, Applicants respectfully submit that Applicants' specification clearly indicates that the picker assembly travels relative to the frame 20 (e.g., in the embodiment illustrated and described above, vertically) and, therefore, such movement is generally along an upward and downward path relative to the frame 20. Thus, Applicants respectfully submit that Claims 21, 22, 29 and 30, when read in light of Applicants' specification, reasonably apprises those skilled in the art both of the utilization and scope of the invention as defined thereby in full compliance with 35 U.S.C. § 112, second paragraph. Thus, Applicants respectfully request that this rejection be withdrawn.

CLAIM OBJECTIONS

The Examiner objected to Claims 33, 44 and 46 for informalities (e.g., misspelling and punctuation). Applicants have amended Claims 33, 44 and 46 as indicated by the Examiner to correct such typographical informalities. Applicants respectfully submit that such amendments are not made to overcome any cited reference and, therefore, the scope of Claims 33, 44 and 46 remains unchanged. Applicants respectfully request that this objection be withdrawn.

SECTION 102 REJECTIONS

Claims 16, 24, 31, 38 and 45 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,434,090 issued to Basham et al. (hereinafter "*Basham*"). Claims 16, 18-19, 23-26, 31, 34, 36-38, 41-47 and 49 were rejected under 35 U.S.C. 102(e) as being anticipated by

U.S. Patent No. 6,215,315 issued to Maejima (hereinafter “*Maejima*”). Applicants respectfully traverses these rejections.

Basham Reference

Of the rejected claims, Claims 16, 24, 31, 38 and 45 are independent. Independent Claim 16 recites “first and second cables each adapted to communicate a predetermined set of signals to [a] plunge assembly, the first cable operating in a standby mode when the second cable is operating in an active mode” (emphasis added). In the Office Action, the Examiner refers to column 8, lines 37-41, and communication paths 542 and 543, of *Basham* as disclosing the limitations of independent Claim 16 (Office Action, page 4). Applicants respectfully disagree.

Basham appears to disclose a host 502 coupled to a relay drive 508 and a relay drive 509 (*Basham*, column 8, lines 5-13, figure 5). *Basham* also appears to disclose that relay drive 508 is connected to a robotic device 534 via a communication path 542 and communications loop 516, and that relay drive 509 is connected to the robotic device 534 via a communication path 543 and the communications loop 516 (*Basham*, column 8, lines 33-414, figure 5). *Basham* further appears to disclose that the host 502 of *Basham* sends its robotic device management signals through either one of the relay derives 508 and 509 (*Basham*, column 8, lines 15-18). *Basham* additionally appears to disclose that because the host 502 of *Basham* is connected to two relay drives (e.g., relay drives 508 and 509), the host 502 has a redundant connection to the communications loop 516 and robotic device 534 (“thus, the remaining drive 508-509 can still provide access to the loop 516 if the route through one drive 508-509 somehow fails”) (*Basham*, column 8, lines 37-41). Thus, *Basham* does not disclose or even suggest that either of the relay drives 508 and 509 is operating in an active mode while the other is in a standby mode. To the contrary, both the relay drives 508 and 509 of *Basham* appear to be maintained in an active mode capable of communicating robotic device management signals to the robotic device 534 from the host 502 unless one of the drives 508 and 509 fails (such failure clearly not to be construed as a “standby” mode). Therefore, for at least this reason, Applicants respectfully submit that independent Claim 16 is patentable over the *Basham* reference.

Independent Claim 24 recites “a first cable adapted to communicate a set of control signals to the plunge assembly for controlling the plunge assembly” and “a second cable adapted to communicate a redundant set of control signals to the plunge assembly for controlling the plunge assembly” (emphasis added). As discussed above in connection with independent Claim 16, *Basham* appears to disclose that because both relay drives 508 and 509 are connected via communications loop 516 to the robotic device 534 of *Basham*, the host 502 has a redundant connection to the robotic device (e.g., in case one of drives 508-509 fails) (*Basham*, column 8, lines 8-41, figure 5). However, *Basham* does not disclose or even suggest, nor has the Examiner explicitly identified any such disclosure in *Basham*, that “a redundant set of control signals” are communicated to the robotic device 534 of *Basham*. A redundant connection does not automatically correspond to a redundant set of control signals. Therefore, for at least this reason, Applicants respectfully submit that independent Claim 24 is patentable over the *Basham* reference.

Independent Claim 31 recites “first and second cables each adapted to communicate a predetermined set of signals to the picker assembly, the first cable operating in a standby mode when the second cable is operating in an active mode” (emphasis added). At least for the reasons discussed above in connection with independent Claim 16, Applicants respectfully submit that independent Claim 31 is also patentable over the *Basham* reference.

Independent Claim 38 recites “a first cable adapted to communicate a set of control signals to the picker assembly for controlling the picker assembly” and “a second cable adapted to communicate a redundant set of control signals to the picker assembly for controlling the picker assembly” (emphasis added). At least for the reasons discussed above in connection with independent Claim 24, Applicants respectfully submit that independent Claim 38 is also patentable over the *Basham* reference.

Independent Claim 45 recites “a first cable coupled to the picker assembly at a first location and adapted to communicate a plurality of different signals to the picker assembly” and “a second cable coupled to the picker assembly at a second location different than the first location, the second cable adapted to communicate a plurality of different signals to the picker assembly” (emphasis added). In the Office Action, the Examiner appears to equate the robotic device 534 of *Basham* to the “picker assembly” recited by Claim 45 as the “picker assembly [is] movable along a predetermined path” as recited by Claim 45 (Office Action, page 4). Additionally, as discussed above, the Examiner refers to communication paths 542 and 543 for communicating signals to the robotic device 435 of *Basham* (Office Action, page 4). However, Applicants respectfully point out that communication paths 542 and 543 terminate at the communication loop 516 of *Basham*, and communication path 516 is coupled to the robotic device 534 at a single location, namely, the drive port 550, by a single communication path 548 (*Basham*, column 8, lines 33-41, figure 5). Therefore, *Basham* does not disclose or even suggest, nor has the Examiner explicitly identified any such disclosure in the *Basham* reference, relating to first and second cables coupled to different locations of the drive device 534 of *Basham*. Accordingly, for at least this reason, Applicants respectfully submit that independent Claim 45 is patentable over the *Basham* reference.

Claims 18, 19, 23, 25, 26, 34, 36, 37, 41-44, 46, 47 and 49 that depend respectively from independent Claims 16, 24, 31, 38 and 45 are also not anticipated by *Basham* at least because they incorporate the limitations of respective Claims 16, 24, 31, 38 and 45 and also add additional elements that further distinguish *Basham*. Therefore, Applicant respectfully requests that the rejection of Claims 16, 18, 19, 23-26, 31, 34, 36-38, 41-47 and 49 be withdrawn.

Maejima Reference

Independent Claim 16 recites “first and second cables each adapted to communicate a predetermined set of signals to [a] plunge assembly, the first cable operating in a standby mode when the second cable is operating in an active mode” (emphasis added). In the Office Action,

the Examiner refers to column 7, lines 14-67, and cables 78 or 80, of *Maejima* as disclosing the limitations of independent Claim 16 (Office Action, page 4). Applicants respectfully disagree.

Maejima appears to disclose outer check lines 78 (#1) and 78 (#2) and inner check lines 80 (#1) and 80 (#2) disposed in the vicinity of opposite edges of a flat cable 44, the flat cable 44 connected at one end to a printed wiring board of an accessor robot 14 and at the other end to a printed wiring board 72 (*Maejima*, column 6, line 63 to column 7, line 26, figure 7). *Maejima* also appears to disclose that each of the outer check lines 78 (#1 and #2) is grounded and connected to an identifying circuit through a resistor R (*Maejima*, column 7, lines 32-37, figure 7). *Maejima* also appears to disclose that the identifying circuit is used to detect a break in each of the outer check lines 78 (#1 and #2) (*Maejima*, column 7, lines 35-38). *Maejima* recites:

[I]n the case that the outer check line 78 (#1) has no breaks, the voltage level of the outer check line 78 (#1) detected by the identifying circuit 82 becomes almost equal to ground potential, whereas in the case that the outer check line 78 (#1) has a break, the voltage level of the outer check line 78 (#1) detected by the identifying circuit 82 becomes almost equal to a potential at the power supply line VCC. . . . Based on a similar principle, a break in the outer check line 78 (#2) can be detected by the identifying circuit 82.

(*Maejima*, column 7, lines 38-50). Thus, *Maejima* does not disclose or even suggest that one of the outer check lines 78 is used in an active mode while the other outer check line 78 is used in a standby mode, nor has the Examiner explicitly identified any such disclose in *Maejima*. To the contrary, *Maejima* recites: “[T]he voltage levels of the outer check lines 78 (#1 and #2) . . . can be detected independently of each other. Accordingly, it is possible to also detect which of the opposite side edges of the flat cable 44 has started to be damaged.” (*Maejima*, column 9, lines 23-29). Therefore, for at least this reason, Applicants respectfully submit that independent Claim 16 is patentable over the *Maejima* reference.

Maejima also appears to disclose that a signal driving circuit 84 transmits a check signal having a pulse waveform to the inner check line 80 (#1), and the signal receiving circuit 86

receives the check signal returned through the inner check line 80 (#2) (*Maejima*, column 7, lines 50-63). Thus, *Maejima* does not disclose or even suggest, nor has the Examiner explicitly identified any such disclose in *Maejima* that one of the inner check lines 80 is used in active mode while the other inner check line 80 is used in standby mode. To the contrary, the check lines 80 (#1 and #2) are used together to detect a break in the flat cable 44. Nor does *Maejima* disclose or even suggest that the outer lines 78 are used in an active mode while the inner check lines 80 are used in a standby mode, or vice versa. To the contrary, *Maejima* appears to use both of the above-described methods to detect a break in the flat cable 44 of *Maejima*. Therefore, for at least these reasons also, Applicants respectfully submit that independent Claim 16 is patentable over the *Maejima* reference.

Independent Claim 24 recites “a first cable adapted to communicate a set of control signals to the plunge assembly for controlling the plunge assembly” and “a second cable adapted to communicate a redundant set of control signals to the plunge assembly for controlling the plunge assembly” (emphasis added). As discussed above in connection with independent Claim 16, the check lines referred to by the Examiner in the Office action, (i.e., check lines 78 (#1 and #2) and 80 (#1 and #2)) are used to detect a break in the flat cable 44 of *Maejima* and are not used for controlling the accessor robot 14 of *Maejima*. Therefore, for at least this reason, Applicants respectfully submit that independent Claim 24 is patentable over the *Maejima* reference.

Independent Claim 31 recites “first and second cables each adapted to communicate a predetermined set of signals to the picker assembly, the first cable operating in a standby mode when the second cable is operating in an active mode” (emphasis added). At least for the reasons discussed above in connection with independent Claim 16, Applicants respectfully submit that independent Claim 31 is also patentable over the *Maejima* reference.

Independent Claim 38 recites “a first cable adapted to communicate a set of control signals to the picker assembly for controlling the picker assembly” and “a second cable adapted

to communicate a redundant set of control signals to the picker assembly for controlling the picker assembly” (emphasis added). At least for the reasons discussed above in connection with independent Claim 24, Applicants respectfully submit that independent Claim 38 is also patentable over the *Maejima* reference.

Independent Claim 45 recites “a first cable coupled to the picker assembly at a first location and adapted to communicate a plurality of different signals to the picker assembly” and “a second cable coupled to the picker assembly at a second location different than the first location, the second cable adapted to communicate a plurality of different signals to the picker assembly” (emphasis added). Applicants presume that the Examiner equates the accessor robot 14 of *Maejima* to the “picker assembly” recited by Claim 45 as the “picker assembly [is] movable along a predetermined path” as recited by Claim 45 (Office Action, page 4). Additionally, as discussed above, the Examiner refers to check lines 78 and 80 of *Maejima* for communicating signals (Office Action, page 4). However, Applicants respectfully point out that the check lines 78 and 80 form part of the flat cable 44 of *Maejima*, and the flat cable 44 of *Maejima* is connected to a single location of the accessor robot 14 of *Maejima*, namely, by the printed wiring board 40 (*Maejima*, column 6, lines 63-67, figures 3 and 7). Thus, *Maejima* does not disclose or even suggest, nor has the Examiner explicitly identified any such disclosure in the *Maejima* reference, relating to first and second cables coupled to different locations of the accessor robot 14 of *Maejima*. Accordingly, for at least this reason, Applicants respectfully submit that independent Claim 45 is patentable over the *Maejima* reference.

Claims 18, 19, 23, 25, 26, 34, 36, 37, 41-44, 46, 47 and 49 that depend respectively from independent Claims 16, 24, 31, 38 and 45 are also not anticipated by *Maejima* at least because they incorporate the limitations of respective Claims 16, 24, 31, 38 and 45 and also add additional elements that further distinguish *Maejima*. Therefore, Applicant respectfully requests that the rejection of Claims 16, 18, 19, 23-26, 31, 34, 36-38, 41-47 and 49 be withdrawn.

CLAIM OBJECTIONS

The Examiner objected to Claims 17, 27, 28, 32, 33, 35, 39, 40 and 48 as being dependent upon a rejected base claim. Applicants thank the Examiner for indicating that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Claims 17, 27, 28, 32, 33, 35, 39, 40 and 48 depend respectively from Claims 16, 24, 31, 38 and 45. As discussed above, independent Claims 16, 24, 31, 38 and 45 are in condition for allowance. Therefore, Claims 17, 27, 28, 32, 33, 35, 39, 40 and 48 also allowable. Thus, Applicants respectfully request that this objection be withdrawn.

CONCLUSION

Applicants have made an earnest attempt to place this case in condition for immediate allowance. For the foregoing reasons and for other reasons clearly apparent, Applicants respectfully request reconsideration and full allowance of all pending claims.

No fee is believed due with this Response. If, however, Applicants have overlooked the need for any fee due with this Response, the Commissioner is hereby authorized to charge any fees or credit any overpayment associated with this Response to Deposit Account No. 08-2025 of Hewlett-Packard Company.

Respectfully submitted,

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Date: March 10, 2006

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